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RULEMAKING TO ESTABLISH WEATHERIZATION STANDARDS	§ §	**PUBLIC UTILITY COMMISSION OF TEXAS**

NRG ENERGY, INC.'S COMMENTS ON THE PUCT PUBLIC NOTICE OF REQUEST FOR COMMENTS

NRG Energy, Inc. ("NRG") appreciates the opportunity to provide preliminary feedback to the Public Utility Commission of Texas ("Commission") on this request for comments to establish weatherization requirements in the ERCOT region.

I. INTRODUCTION

NRG is committed to establishing weatherization requirements for electric generation and looks forward to assisting the Commission during the rulemaking process. Under 16 Texas Admin. Code § 25.53, Power Generation Companies ("PGCs") are currently required to have emergency operations plans that address operations during severe weather events. In accordance with this rule, NRG has weatherization procedures for every resource in its generation fleet and winter preparation was completed as planned in November 2020. However, the weather experienced in February of 2021 during winter storm Uri was more extreme than most of NRG's self-imposed standards for weatherization. The State of Texas experienced record cold weather conditions (a combination of temperatures, significant precipitation, and wind chill) over an extended period of time, and therefore NRG, and many other PGCs, experienced equipment failures despite weatherization efforts.

In general, the level of maintenance and weatherization conducted at generation resources in ERCOT is reflective of market forces and the potential impact of weather on operations. The ERCOT market does not currently have a specific mechanism to pay for additional weatherization of resources intended to enhance system reliability. Instead, market participants budget and plan for maintenance and weatherization of generation resources based on a combination of historical market outcomes, machinery and equipment health, future expectations, and forward price signals. Imposing extensive, new weatherization requirements on generation resources without also developing the potential means for cost recovery could widen a revenue gap, prompting existing

generation resources to exit the ERCOT market prematurely causing capacity shortages. This unintended consequence should be avoided.

Senate Bill 3 ("SB3") requires modifications to supplement the existing ERCOT market structure. In addition to reforms of energy pricing, SB3 directs the introduction of seasonal reserve products for both winter and summer seasons tied to weather extremes.[1] Section 18 of SB3 provides that "resource capability qualifications" be established to determine dispatchable generators' eligibility to participate in those markets for reserves products. The Commission should view that workstream as interrelated with this proceeding, because the market reform should constitute a funding stream for investments in resiliency to help withstand extreme weather conditions and complement the weatherization requirements adopted in this proceeding.

II. REQUEST FOR COMMENT

Question 1. To fulfill the requirements of Texas Utilities Code § 35.0021(b), under what weather emergency conditions should the Commission require a provider of electric generation service in the Electric Reliability Council of Texas (ERCOT) power region to be able to operate its generation facilities? At a minimum, please address standards for temperature, icing, wind, flooding, and drought conditions. For each, please address whether the standard should vary by region or by type of generation facility. Please provide any relevant support for your recommendations, including existing or proposed standards in other jurisdictions, or related studies.

It is important to develop weatherization requirements that balance the need for improved resiliency against potential upgrade costs that could prematurely force generation resources out of the market. Weatherization requirements should be established based on weather events likely to occur in Texas relying on both historical experience and engineering analysis in order to minimize weather-related forced outages. NRG continues to analyze data inclusive of recent weather events and evaluate enhanced weatherization options. Therefore, the recommendations below are preliminary and NRG reserves the right to modify and update its position as the development of weatherization requirements proceeds through the rulemaking process.

[1] See Section 18, Senate Bill 3 (effective June 8, 2021).

Cold Weather

- Background: Conventional thermal generation resources are typically constructed to a site-specific design based on the 90th percentile of local historical temperatures (90th percentile is a frequency distribution satisfying historical data 90 times out of 100), including wind chill, rather than the most extreme conditions (hottest/coldest temperatures). Heat trace systems are electrical heating elements attached to pipe/tubing systems covered with insulation and are used to winterize generation resources by helping to keep pipes at an operable temperature when outside temperatures are very low. Wind and precipitation oftentimes hinder heat trace systems from properly operating by removing heat or preventing heat from entering the desired system. Generally, higher wind velocity combined with low temperatures leads to greater heat loss. Heat trace system weak points (damaged lagging, water intrusion, breaks in insulation, damaged cable) are exposed during subfreezing temperatures, wind, and freezing precipitation conditions.
- Recommendation: Generation resources should be designed or retrofitted to operate reliably through cold weather events based on a statistical analyses of historical wind chill temperatures and duration by regional location in Texas. Regional locations could be based on ERCOT's forecast zones (North, South, Houston, and West) and the requirements should apply to every generation resource type in each zone to maintain consistency and promote reliability.

Excessive Wind Speed (Hurricane conditions)

- Background: Wind speed extremes during hurricane conditions can be catastrophic to many structures and operations. Wind design criteria are generally based on relative location to coast, elevation above sea level, and historical wind speeds. These criteria are used in the development of building codes for the design of the structures housing the generation resource. In general, it is difficult to plan for continued operations through a hurricane due to the priority for human safety.

- Recommendation: Require the development of a hurricane preparedness plan for each generation resource in coastal areas (less than 500 miles from the coast). The hurricane preparedness plan should identify critical systems, supplies, procedures for safe operation, and thresholds for evacuation for the safety of plant employees.

Flooding

- Background: Generation resources typically have high water and flooding procedures that identify monitored water systems (i.e. bayous, ponds, discharge channels, etc.) and water levels that result in plant flooding. Plant procedures are written to address personnel safety and suspension of operations to minimize equipment damage.
- Recommendation: Require the development of a flood preparedness plan for each generation resource in the one-hundred-year floodplain. The flood preparedness plan should identify procedures for safe operation and thresholds for evacuation for the safety of plant employees.

Drought and Extreme Hot Weather

- Background: Drought conditions are typically not immediate and will gradually occur over time. Droughts may lead to commercial water restrictions specific to permits and local jurisdictional issues. Extreme hot weather tends to cause derates of generation resources due to decreased cooling capabilities associated with water supply.
- Recommendation: Require the development of a water conservation plan for each generation resource that requires the use of water during the process to generate electricity.

Implementation Time and Extension/Exemption Requests

- Retrofits and upgrades of existing generation resources to meet weatherization requirements will take time to complete given supply chain constraints, simultaneous procurement of equipment from vendors, and scheduling of available resources. The weatherization process will also require units to be taken offline for some period of time, which must be scheduled in shoulder months to avoid outages during peak

periods. While weatherization planning and activities will begin as soon as possible, NRG recommends a preliminary deadline of November 1, 2023 be established to complete such activities. This deadline would limit extensive, simultaneous generation outages that could cause reliability issues and provide four outage windows in which to perform work that must be completed while generation resources are offline. A formal process should be included to allow for resource-specific requests for extensions to comply with the requirements given the constraints mentioned above. Also, the Commission should consider a resource-specific exemption process for generation resources which may show good cause to be excluded from a particular weatherization requirement (i.e. seasonal mothball units which only operate in the summer could be exempted from winter weatherization requirements).

III. CONCLUSION

NRG appreciates the Commission's thoughtful approach to gather stakeholder feedback during the development of weatherization requirements. NRG looks forward to continued participation and opportunities to develop these new rules to better prevent future reliability events related to extreme weather.

Respectfully submitted,

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